

## FLEAS COLLECTED BY DR. MAX BARTELS IN JAVA.

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(With 7 text-figures.)

THE collection of fleas sent by Dr. Max Bartels consists of 30 specimens belonging to 10 species, of which no less than 3 are new, one of them representing a new genus allied to *Ctenophyllus*, which occurs in Eastern Siberia and North America. The collection, moreover, contains a male of *Paraceras javanicus*, of which species we had only the female, the single known male being at Washington. The small series of *Ceratophyllus calceatus* is likewise most welcome, as but 6 specimens of this species are known. The pair of *Stivalius klossi* obtained by Dr. Bartels renders it certain that *St. synetus* is the female of *St. klossi*, and the discovery of a *Palaeopsylla* extends the range of that genus very considerably. The collection, therefore, is of particular interest, and we thank Dr. Max Bartels sincerely for this contribution to our knowledge of the fauna of Java.

The specimens were collected at Tijboeni, Bandung, West Java, by Dr. Max Bartels with the exception of No. 1, which he received from Mr. E. Bartels.

1. *Ctenocephalides felis felis* Bouché 1835.

On *Paradoxurus hermaphroditus javanicus*, 30.vi.1931, 1 ♀, an accidental occurrence.

2. *Ceratophyllus calceatus* Roths. 1905.

On *Rattus bukit temmincki*, 5.x.1932, 2 ♂♂; *Callosciurus nigrovittatus nigrovittatus*, 9.x.1932, 1 ♂, 1 ♀; *Rattus lepturus lepturus*, 12.x.1932, 1 ♀.—The specimens from the Malay Peninsula, Sumatra, and Java do not seem to differ.

*Cratynius* gen. nov.

♀. Near *Ctenophyllus* Wagner 1927 (in *Konowia*, vi, p. 108), but differs from all genera more or less nearly related to *Ceratophyllus* Curtis 1832 in the mesosternite being divided into three sclerites instead of two in consequence of the strong development of the internal ridge representing the suture between the sternum (St) and episternum (Est); cf. text-fig. 72.

Frons and occiput with three rows of bristles, the 4 lower bristles of the anterior row of frons spiniform, sharply pointed; eye small, above it the internal curved genal rod present in all *Ceratophyllids* in which the upper eye-bristle is placed near the antennal groove. Bristles of antennal segment II short.

Pronotal comb with more than 20 spines, which are narrow and longer than the pronotum. Surface ridges of thoracic and abdominal tergites and legs somewhat coarse, with minute teeth here and there, apical margins of abdominal tergites I to VII minutely denticulate. Basal abdominal sternite with subbasal lateral bristles. Tibiae with 3 long dorsal bristles (subbasal, median, and apical), the other bristles short (text-fig. 73). Tail of spermatheca very long (text-fig. 74); duct of spermatheca likewise long, the blind duct on the contrary a mere remnant (D.o.).—Genotype: sp. nov. here described,

3. *Cratynius bartelsi* sp. nov. (text-figs. 72, 73, 74).

♀. Frontal tubercle external, sharp, ventrally almost horizontal, dorsally very little raised above the surface of the head. Three rows of bristles on frons : 6, 2, 2 ; the three rows on occiput contain (each side) 5, 5, 7 bristles. Eye longer than broad, sinuate, convex and dark below sinus. Segment I of maxillary palpus longer than II, proportions of the four segments : 11, 9, 6, 10.5. Proboscis reaching beyond two-thirds of forecoxa.

Pronotal comb with 23 spines, the lateral spines one-third longer than the pronotum ; a row of 10 bristles. On mesonotum a posterior row of 10 (on the

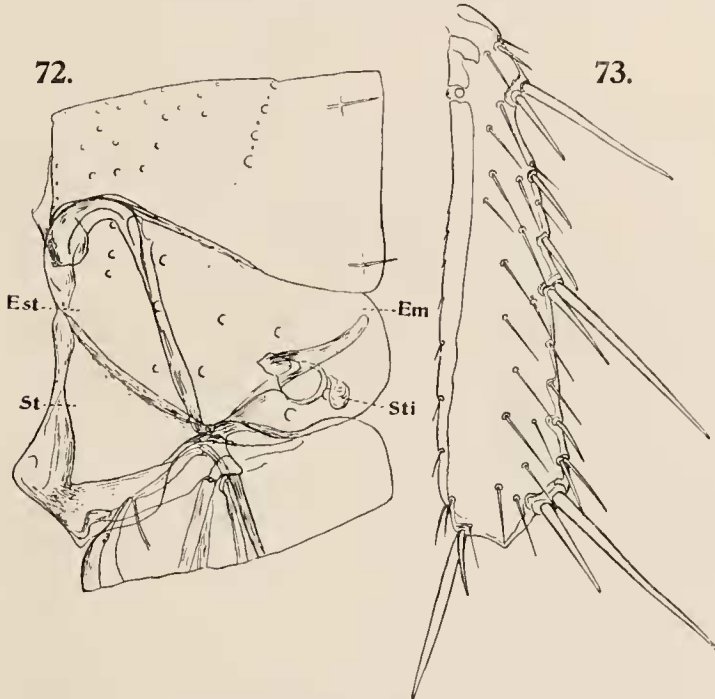


FIG. 72.—*Cratynius bartelsi*, mesothorax.  
 „ 73.— „ „ „ „ hindtibia.

two sides together), between this row and basal margin (inclusive of small basal bristles) 40 odd ; on mesopleurae 10 or 11 each side of body. On metanotum a posterior row of 8 and between the row and base 19, at apical margin 2 short spines ; on metepimerum 6 or 7 bristles : 3, 3, 1, and 2, 3, 1.

Apical spines on abdominal tergites : 3, 2, 2 ; bristles : on III, 9, 12, IV 10, 12, V 5, 10, VI 4, 10, VII 0, 10 ; on sternites : III 0, 8, IV 3, 8, V 2, 8, VI 2, 8. Three antepygidial bristles, dorsal one less than half the length of the others.

Hindcoxa one-third longer than broad, without bristles on inner surface. Forefemur, on outside, with about 6 lateral and subdorsal bristles, and close to apex a vertical row of 4 or 5, this row also present on mid- and hindfemora, all femora on outside with a minute lateral bristle in anterior half, and on inside a single bristle, which is subapical and ventral ; outer apical dorsal bristle of femora

short, especially stumpy on hindfemur. On dorsal margin of tibiae 3 pairs of strong bristles, the outer ones short; on hindtibia between first and second pair two shorter and less strong dorsal bristles, and between second and apical pairs 2 smallish bristles, a stronger one and a subapical moderately strong pair; 15 lateral bristles on hindtibia in two irregular rows (text-fig. 73). Proportions of tarsal segments: in midtarsus 23, 16, 12, 8, 16, hindtarsus 42, 25, 15, 9, 17. In all tarsi segment V with five pairs of lateral ventral bristles.

*Modified Segments.*—Sternite VII (text-fig. 74) with a deep, narrow sinus, around which the chitin is somewhat thickened; the lobe above the sinus rounded, much narrower than the lower lobe; the apical margin of the latter

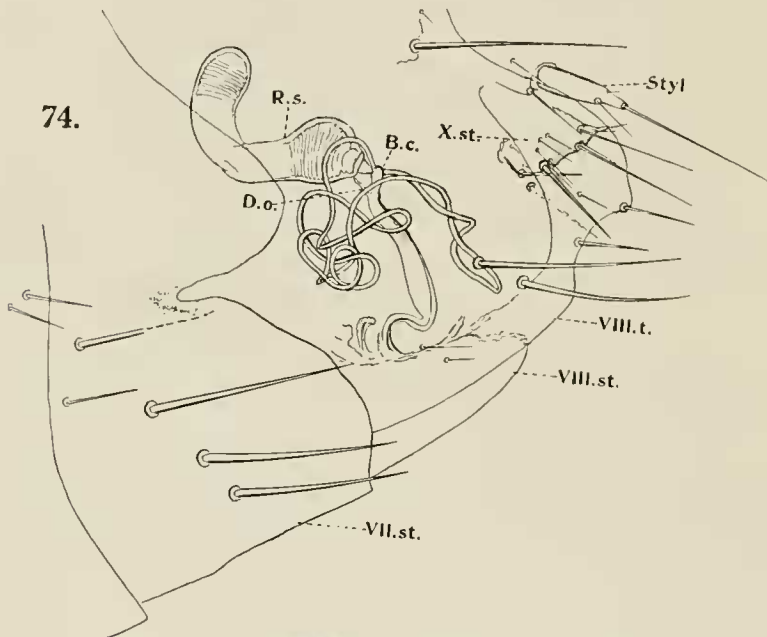


FIG. 74.—*Cratynius bartelsi*, posterior segments and genital organs.

slanting in upper half and irregularly and very moderately rounded in lower half; on the two sides together 3, 10 bristles. On VIII.t. 4 minute subapical hairs above the stigma, which is long, extending nearly to the dorsal middle line; below stigma 1 long bristle and a minute hair, and on the widened lower area 7 or 8 bristles, of which 2 are long and 2 or 3 small; on inside 2. Stylet almost exactly three times as long as broad. Spermatheca with short round head which almost gradually merges into the long tail, head and apex of tail strongly striated, the whole organ nearly as long as hindtarsal segment II.

Length: 2.6 mm.; hindfemur: 0.43 mm.

On *Hylomys suillus suillus*, S.X.1932, 1 ♀.

#### 4. *Paraceras javanicus* Ewing 1924 (text-fig. 75).

On *Paradoxurus hermaphroditus javanicus*, 18.xii.1932, 1 ♂.—As compared with *P. pendleburyi*, from Borneo, described in Nov. Zool. xxxviii, p. 267, no. 2, text-figs. 23, 24 (1932), the process P of the clasper (text-fig. 75) is much

shorter and broader and the dorso-apical flap of F longer, and the row of bristles on the inner surface of F is placed much nearer the posterior margin, the dorsal margin of F is less convex and the posterior margin concave, not convex.

5. *Stivalius jacobsoni* J. & R. 1922.

On *Petaurista elegans*, 18. ix. 1932, 1 ♀; *Rattus bartelsi*, 24. viii. 1932, 1 ♀.—Only a few specimens are known, from Sumatra and Java.

6. *Stivalius cognatus* J. & R. 1922.

On *Rattus bukit temmincki*, 10. ix and 5. x. 1932, 3 ♀♀; *Rattus lepturus lepturus*, 12. x. 1932, 1 ♂, 2 ♀♀; *Rattus concolor ephippium*, 18. ix. 1932, 1 ♂, 2 ♀♀; *Ratufa bicolor bicolor*, 1 ♀.—The commonest of the Javan *Stivalius*.

7. *Stivalius klossi* J. & R. 1922.

On *Rattus maxi*, 21. viii. 1932, 1 ♂; *Ratufa bicolor bicolor*, 1 ♀.—We described a Sumatran ♀ as *St. synetus* in

*Ectoparasites*, i, p. 229 (1922). The present ♀ differs in the lower angle of the upper lobe of VII.st. being produced as a short sharp projection. It is, however, very unlikely that this distinction will hold good when more ♀♀ are at hand. I no longer hesitate to place *St. synetus* as a synonym of *St. klossi*.

8. *Stivalius javanus* sp. nov. (text-figs. 76, 77).

♂♀. Nearest to *St. rhaebus* Jordan 1926, from Borneo, and probably representing that species on Java. Both these insects belong to Group B (cf. *Ectoparasites*, i, p. 256 (1922)), in which there are only two heavy bristles in the dorsal

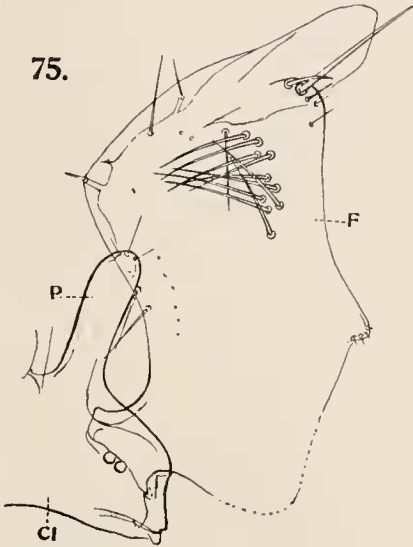


FIG. 75.—*Paraceras javanicus*, clasper and exopodite.

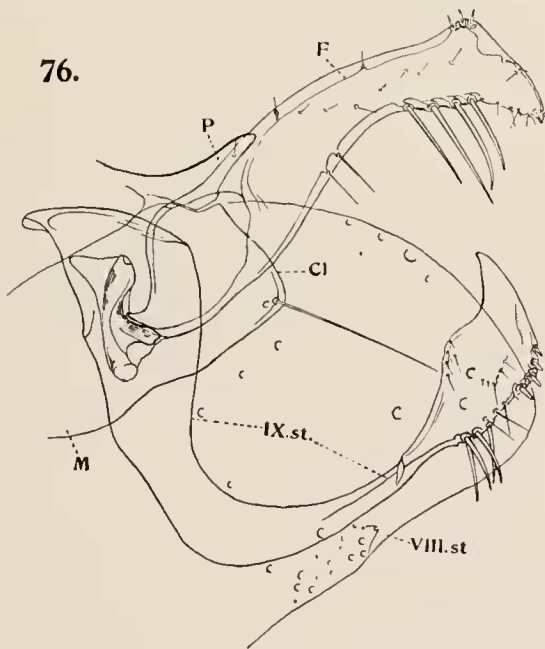


FIG. 76.—*Stivalius javanus*, ♂-genitalia.

notches of the tibiae. In the ♂ of the new species the exopodite F is narrower

and less curved than in *St. rhaebus*, the apex of the vertical arm of IX.st. is much less dilated, the semicircular portion of the segment longer, and VIII.st. bears fewer lateral bristles; in the ♀ the spermatheca is strongly humped.

♂. On each side of VIII.st. 14 or 15 lateral and dorso-marginal bristles, and on the ventral median projection about 12, of which some are very small and 2 stout. Width of exopodite F (text-fig. 76) measured at margin of clasper above long thin ventral bristle of clasper a very little more than one-fifth the length of the exopodite measured from extreme base (4:19); proximally to apex a ventral row of 4 long bristles, the distance of the most distal bristle from the apex of F the same as from the most dorsal point of the dome which bears 3 short pale spiniforms. Apical dilated portion of vertical arm of IX.st. as broad as

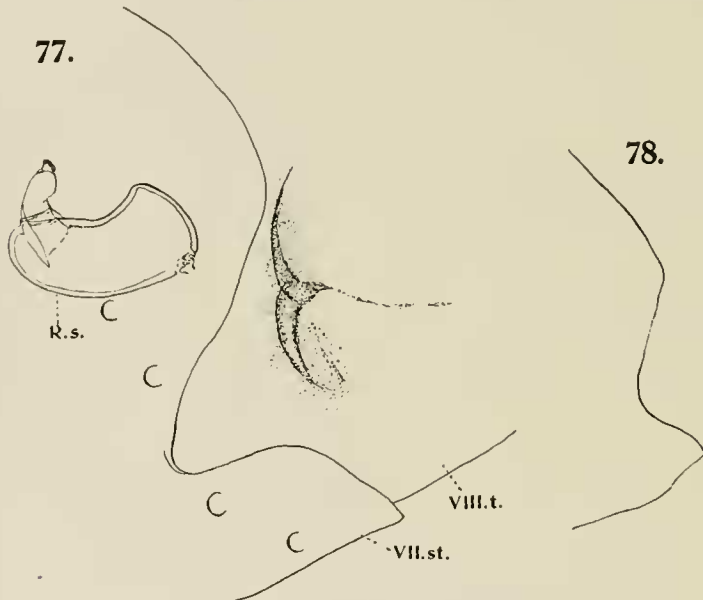


FIG. 77.—*Stivalius javanus*, ♀, VII.st. and VIII.t.  
 .. 78.—*Palaeopsylla larata*, ♀, VII.st.

midtarsal segment II is long; the apical portion of the ventral arm with similar spiniforms as in *St. rhaebus*, the apex of the segment acuminate, but very little recurved.

♀. The two sickle-shaped inerassations of VIII.t. (text-fig. 77) larger than in *St. rhaebus*, and centrally more intimately fused together. The hump of the spermatheca very prominent in all 3 specimens, though individually variable.

Length: ♂ 3.0 mm., ♀ 5.0–5.6 mm.; hindfemur: ♂ 0.48 mm., ♀ 0.67–0.75 mm.

On *Tupaia javanica occidentalis*, 18.ix.1932, 1 ♂, type; *Rattus bukit teminck*, 5. and 30.x.1932, 2 ♀♀; *Callosciurus nigrovittatus nigrovittatus*, 11.viii.1932, 1 ♀.

#### 9. *Neopsylla kopsteini* Jordan 1931.

On *Rattus lepturus lepturus*, 12.x.1932, 1 ♂, 1 ♀.—Discovered on this rat by Dr. F. Kopstein, and described in *Nov. Zool.* xxxvii, p. 145, no. 3, text-figs. 3, 4, 5 (1931).

10. *Palaeopsylla laxata* sp. nov. (text-fig. 78).

♀. Very close to *P. incurva* Jord. 1932 (1 ♀, N.E. Burma, on "*Sorex*"), with the same peculiar pronotal comb. Differs only in the tail-end. The upper lobe of VII.st. (text-fig. 78) almost effaced, projecting much less than the ventral lobe, and the sinus very large, but no deeper than in *P. incurva*; in one specimen 25 bristles, in the other 35. On VIII.t. a subventral vertical row of 3 bristles, the lowest very small, in *P. incurva* all 3 bristles moderately long and strong; at apex of VIII.st. 4 or 5 bristles instead of 3.

On *Crocidura brevicauda*, 22.viii.1932 and 10.i.1933, 2 ♀♀.

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